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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/888,118	06/22/2001	Wiley J. Youngs	UA-319 A	9051

26360 7590 03/27/2003

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EXAMINER

MULLIS, JEFFREY C

ART UNIT PAPER NUMBER

1711

DATE MAILED: 03/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/888,118

Applicant(s)

YOUNGS ET AL.

Examiner

Jeffrey C. Mullis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-70 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-70 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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Applicants are reminded that the claims of record and the claims as originally filed prior to applicants' amendment of 6-22-01 were 1-55. Therefore no claims have been cancelled since it is unclear which claims applicants wish to be cancelled in that applicants' amendment A requests the cancellation of claims 1-66 despite the fact that there were only claims 1-55 pending in the case at the time of the amendment. Applicants' claims presented in amendment A, namely claims 67-81 have therefore been renumbered in accordance with Rule 121 as claims 56-70.

Claims 63-65 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention.

Claim 63 appears to lack antecedent basis in claim 62 in that claim 63 recites that the cross-linking agent is selected from double and multiple cross-linking agents despite the fact that claim 62 merely recites "a cross-linking agent" and therefore implies that only one agent is present.

The term "about 1" as recited in claim 64 renders claim 64 unclear since the only whole number less than 1 is 0 and given that an organic group cannot have less than 1 carbon atom.

Claim 65 is unclear since one of the structures recites a moiety "PH" which is not art recognized. If PH is intended to be phosphorus, the total valence of the other moiety SiPH is

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inconsistent with that required. Furthermore the adjacent moiety in the structure appears to contain two methyl groups attached to a silicon as well as a hydrogen and two oxygens and therefore silicon would be more than tetravalent in the structure which is not ordinarily possible and it is therefore unclear what is intended.

The term "about 1" as recited in claim 65 renders claim 65 unclear since the only number less than 1 is 0 and since an organic group must have more than 0 carbon atoms, this is inconsistent. The same can be said for the term "about 1" in the context of the definition for R<sup>3</sup>.

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. § 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. § 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. § 101.

Claims 1-55 are rejected under 35 U.S.C. § 101 as claiming the same invention as that of claims 1-55 of prior U.S. Patent No. 6,288,197. This is a double patenting rejection.

The non-statutory double patenting rejection, whether of the obviousness-type or non-obviousness-type, is based on a judicially created doctrine grounded in public policy (a policy

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reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent. *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); and *In re Goodman*, 29 USPQ 2d 2010 (Fed. Cir. 1993).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(b) and (c) may be used to overcome an actual or provisional rejection based on a non-statutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.78(d).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 56-70 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-63 of U.S. Patent No. 6,288,197. Although the conflicting claims are not identical, they are not patentably distinct from each other because the intermediate product of the patented claims (i.e. the uncleaved product) is identical to that of the instant claims and the concept of the uncleaved product is therefore obvious given that the patented claims explicitly recite the presence of an uncleaved product prior to the formation of the cleaved product.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication

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in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) The invention was described in (1) an application for patent, published under Section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 56-68 and 70 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Dvornic et al. (USP 5,902,863), cited by applicants.

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Dvornic et al. disclose a dendrimer based network which is prepared by cross-linking dendrimers with cross-linking agents. Note column 5 line 18 - column 6 line 5 in this regard. Note also Figure 1 which shows the atoms of the dendrimers connected by siloxane linkages. Although the dendrimers are intermolecularly cross-linked as well as intramolecularly cross-linked, the instant claims do not exclude this. Since dendrimers are often referred to as being hollow despite the presence of interior generations, the dendrimers of Dvornic can reasonably be said to meet applicants' limitation of "hollow". For the reasons set out above, it would reasonably appear that patentees' dendrimers are intramolecularly cross-linked. Note column 12 line 30 for metals in the interior of the dendrimers as well as the use of PAMAM.

When the reference discloses all the limitations of a claim except a property or function, and the Examiner cannot determine whether or not the reference inherently possesses properties which anticipate or render obvious the claimed invention, basis exists for shifting the burden of proof to applicant. Note In re Fitzgerald et al. 619 F. 2d 67, 70, 205 USPQ 594, 596, (CCPA 1980). See MPEP § 2112-2112.02.

Claims 56-69 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Tomalia (USP 4,737,550).

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Tomalia discloses the production of "bridged" dendrimers. Note column 5 lines 34-35 as well as Samples 3 and 5 disclosing the production of such bridged dendrimers. Note that the materials are produced by reacting a dendrimer possessing electrophilic terminal groups with another dendrimer having nucleophilic terminal groups. Since the nucleophilic terminal group containing dendrimer is multifunctional, it can be viewed as a cross-linking agent. Note column 19 lines 1-29 in this regard as well as column 19 lines 54-59 which disclose that the dendrimers have cavities, i.e. are hollow. Note the paragraph bridging columns 19 and 20. It is disclosed that catalysts may be encapsulated in the interior of the dendrimer. For the reasons set out above, it reasonably appears that the surface of the dendrimer of Tomalia is cross-linked intramolecularly.

When the reference discloses all the limitations of a claim except a property or function, and the Examiner cannot determine whether or not the reference inherently possesses properties which anticipate or render obvious the claimed invention, basis exists for shifting the burden of proof to applicant. Note In re Fitzgerald et al. 619 F. 2d 67, 70, 205 USPQ 594, 596, (CCPA 1980). See MPEP § 2112-2112.02.

Claims 56-68 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Dvornic et al. (USP 5,739,218).



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Dvornic et al. disclose a process in which a dendrimer is reacted with a multifunctional reactant. Since the PAMAM dendrimer described in Example 1 has reactive amino groups on the surface which are capable of reacting with the acryl functionality as well as the SiOMe functionality, it reasonably appears that the reaction of Example 1 would produce some surface cross-linking. Furthermore it is disclosed at column 6 lines 20-22 that the product is not stable when stored in other than anhydrous solution. Since water would be expected to react with the ethoxysilane units, such that condensation would occur, it would reasonably appear that some cross-linking would also take place by this route. While admittedly the amount of surface cross-linking may not be very great in Example 1, the instant claims are not limited as to how much surface cross-linking takes place.

When the reference discloses all the limitations of a claim except a property or function, and the Examiner cannot determine whether or not the reference inherently possesses properties which anticipate or render obvious the claimed invention, basis exists for shifting the burden of proof to applicant. Note In re Fitzgerald et al. 619 F. 2d 67, 70, 205 USPQ 594, 596, (CCPA 1980). See MPEP § 2112-2112.02.

Applicants' arguments filed 6-22-01 have been fully considered but they are not deemed to be persuasive.

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Applicants argue that the prior art discloses such features as network formation and intermolecular cross-linking. However the instant claims do not exclude such features. With regard to applicants' allegation that the reference does not disclose how to teach or suggest how to degrade and remove an encapsulated dendrimer to form a hollow cross-linked shell, the instant claims do not require such a process. In all cases, the type of functionality engaging in intermolecular cross-linking in the prior art is the same functionality present within each molecule and it would therefore reasonably appear that intramolecular cross-linking would take place as well as intermolecular cross-linking.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey Mullis whose telephone number is (703) 308-2820. The examiner can normally be reached on Monday-Friday from 9:30 to 6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck, can be reached on (703) 308-2462. The fax phone number for this Group is before final (703) 872-9310 and after final (703) 8729311.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-2351.

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J. Mullis:cdc

March 25, 2003

Jeffrey Mullis  
Primary Examiner  
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A handwritten signature in black ink, appearing to be 'JM', written over the printed name and title.